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## AVERAGE AND PROBABILITY.

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200. Proposed by PROFESSOR R. D. CARMICHAEL, Anniston, Ala.

A line  $AB=l$  is extended to  $P$  making  $BP=p$ . If a point  $D$  is taken at random in  $BP$ , what is the mean value of  $AD \cdot DP$ ?

201. Proposed by J. EDWARD SANDERS, Reinersville, Ohio.

A random straight line is drawn across a circle and another through a given point on the circumference. Find the chance that they intersect within the circle.

202. Proposed by F. P. MATZ, Ph. D., Reading, Pa.

If three chords are drawn at random in a circle, what is the chance the center of the circle is enclosed by the three chords, and what is the mean area of this enclosing triangle?

203. Proposed by J. EDWARD SANDERS, Reinersville, Ohio.

Find the average length of a hole at random through a given cone.

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## MISCELLANEOUS.

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180. Proposed by W. J. GREENSTREET, M. A., Stroud, England.

Show that  $\sum_{n=1}^{n=\infty} (-1)^n \frac{1}{(2n-1)(2^{2n}-1)} = \frac{1}{2} \tan^{-1} \frac{3 \cdot 2^n}{2^{2n+1}-1}$ , the smallest value of each inverse function being taken.

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## NOTES AND NEWS.

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Dr. Herbert G. Keppel, of Northwestern University, has been elected head of the department of mathematics of the University of Florida.

The next annual meeting of the American Mathematical Society will be held at Baltimore, Md., during the holidays in connection with the annual conference of the American Society for the Advancement of Science.

At the meeting of the Central Association of Science and Mathematics Teachers, held in Chicago, November 27 and 28, 1908, a committee was appointed to select material for concrete applications in the teaching of geometry. This is a move in the right direction, for without doubt geometry teaching has become too much of an exercise in abstract logic.

A movement is under way whereby the recently organized Federation of Associations of Science and Mathematics Teachers throughout the